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ROYAL AGRICULTURAL SOCIETY'S
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I.

THE Royal Agricultural Society of England, the greatest Agricultural Society in the world, has on its roll 5,846 members. It was founded upwards of thirty years ago, by men to whom the agricultural classes are largely indebted. It has issued ever since a half-yearly volume of Transactions, in which most valuable papers have appeared from time to time.

We propose to review the two last numbers, 20 and 21: the present notice is confined to No. 20. It contains sixteen papers, which treat of varied and interesting subjects. It begins with a long paper, by Prof. Wrightson, of Cirencester, "On the Agriculture of the Austro-Hungarian Empire," which affords evidence that Mr. Wrightson laboured diligently during a tour in that country, to collect facts. The most important conclusion deduced from his inquiries is that "there is little for the Englishman to learn from Hungarian farming." If consolidation of farms be ever carried to an extreme limit, "a valuable lesson may, however, be taken from that country, where it is no uncommon thing to see hundreds of thousands of acres under a central management." But it is not likely that farming will ever be practised in England on that gigantic scale.

The most readable paper in the Journal is a biographical sketch of the late Sir Harry S. M. Thompson, Bart., of Kirby Hall, Yorkshire, whose lamented death, last year, left a blank in the ranks of the Society not easily filled. This notice has been contributed by Earl Cathcart; and it affords ample evidence that his lordship is a man of ability, a good writer, and a man of fine feelings and disposition. The late Sir Harry Thompson, Bart., better known as Mr. Thompson, was one of the most active members of the Society. Speaking from a slender personal acquaintance, we would say that he was a man of great industry and of remarkable capacity for business. He sought to probe every subject to the bottom. He had one quality, which is one of the best a public man could possess—he was true to his convictions. It is generally considered that in filling up important offices in the Society he committed grave mistakes; but believing himself to be right, he urged his views with his usual ability, and with that strong will which enabled him to conquer many difficulties, and won. We commend to the careful perusal of the landed gentry who aspire to take a leading part in agricultural progress, Lord Cathcart's biographical notice, in which they will find the outlines of a splendid career, told with singular truthfulness and felicity.

The contributors to this Journal may be divided into two classes—amateur and professional. Lord Cathcart belongs to the former class, and so does Mr. J. Dent Dent, of Ribston Hall, Wetherby, who contributes an admirable paper under the modest title of "Agricultural Jottings from the General Report of the last Census of

England and Wales." It is rather behind time, but is throughout a candid and thoughtful paper. "On the whole," concludes Mr. Dent, "the number of small holdings is more considerable than was imagined, the demands of the towns are not beyond the means of supply, and the condition of the agricultural labourer is fast rising to a more equal rank with that of the skilled artisan." According to the returns consolidation would appear to have reached the climax in England. The numbers who are described in the returns for 1851, 1861, and 1871 as farmers and graziers are as follows:—

1851	...	...	...	249,431
1861	...	...	...	249,735
1871	...	...	...	249,907

Independently of these, there is a vast number of holders of small pieces of land. The census returns do not furnish the exact figures; but by another official inquiry, returns of live stock were obtained from 469,444 occupiers of land in England and Wales in 1871, a number which was increased to 481,412 in 1873. It may be assumed that the number of farmers and graziers accounted for in the census of 1871 devote their whole time to these pursuits; and that agricultural labourers, tradesmen, artisans, and others, who occupy small holdings, make up the remainder of those who furnished returns of live stock. But until the fact was revealed by these statistics, the public was not prepared for the announcement made by the enumerators that in "England there are about 350,000 separate holdings, not one of which exceeds five acres in extent, and that this number is exclusive of the gardens attached to all classes of dwelling-houses, including those of labouring men."

It is strange that in the face of these facts the leading organ of public opinion has recently laboured to show that small farmers are rapidly dying out.

Professional writers appear in great force in this number of the Journal. Dr. Voelcker, F.R.S., consulting chemist to the Society, contributes two papers; Mr. Carruthers, F.R.S., consulting botanist, contributes an original paper and a translation; Mr. Jenkins, F.G.S., secretary to the Society, contributes a paper on the cultivation of potatoes, with special reference to the potato disease, which was pretty certain to be eagerly perused by all the members of the Society; Prof. Simonds, Principal of the Royal Veterinary College, contributes a report on the health of farm animals; and Prof. Brown, V.S., principal inspector of the Veterinary Department, gives us a paper "On inoculation with the virus of contagious pleuro-pneumonia of the ox."

It is no light duty to review these papers. With us it is not a voluntary task; and this must be our apology for any criticism which may appear severe. Prof. Brown treats of a subject which has attracted a good deal of attention. Prof. Simonds, some years ago, condemned the practice of inoculation as a means of preventing pleuro-pneumonia. Prof. Gamgee has since often repeated his entire belief in it. Prof. Brown, with that caution which has characterised him, has been regarding it as an open question. He has written much on contagious diseases; but he has rarely been able to arrive at any settled views. His present contribution is no exception. In one page we are told "science offers no evidence in favour of inoculation as a preventive of pleuro-pneumonia." Then,

may we not ask, why does a scientific man occupy time and attention in experimenting on it? The experiments recorded in this Journal were made with "the exudate from the lungs of animals which had been slaughtered on account of pleuro-pneumonia." It was assumed that the virus of the disease was present in this exudate. We should like to know on what evidence this assumption is based. We believe that the virus of the disease is given out in the breath, and is not found in any of the secretions; and that none remains, or can be generated in the system, after death. We have deduced this conclusion from our own experiments; and, according to our interpretation, the experiments upon which Prof. Brown's paper is based support the same view. Every competent authority now believes that the virus of contagious pleuro-pneumonia is communicated by a living diseased to a living healthy animal. If the virus could be communicated in any other way into the respiratory passages, there is every reason for thinking that the disease would be produced. If the virus got even into the blood, there is no known reason for thinking that it would not reach the lungs and produce the disease. When the Professor states that he failed to produce the disease with the exudate from diseased lungs, there is some ground for doubting that the exudate contained the virus, and that the title of his paper—"Observations on inoculation with the virus of contagious pleuro-pneumonia"—is questionable, to say the least of it.

We have next to notice Dr. Voelcker's paper entitled "Field Experiments on Pasture Land." We begin by remarking that it is more like the production of a tyro than of a man of well-earned reputation. Some eight or nine years ago Dr. Voelcker suggested to his former pupils and others a series of experiments for testing the efficacy of different manures. In the paper to which we invite attention, the result of one series of these experiments is given. Dr. Voelcker did not superintend any of these experiments. They were made in different parts of the country, by men who, we presume, possess more than average fitness for describing their own experiments. It is most desirable that experiments of this kind should be carried out on different soils and in different circumstances; and, so far, the scheme set on foot by Dr. Voelcker deserves our highest praise. It is to the execution of the scheme, and to his own report in particular, that we object. The experiments were made at four different places. We are not furnished with the analysis of the soil at any of these places. Among the manures experimented with were mineral superphosphates, Peruvian guano, crude potash salts, bone-dust, &c. It is notorious that superphosphate varies greatly in composition. It is equally well known that of late years Peruvian guano has varied greatly in quality. No man knows this better than Dr. Voelcker, and yet in the report under review he does not give the analysis of a single manure used in these experiments. Under these circumstances we submit that false conclusions are liable to be deduced from the results. This sort of work is not science, and we call upon the governing body of the Royal Agricultural Society of England to put an end to it. When we examine with care the tables and the conclusions sought to be drawn from them by Dr. Voelcker, we see additional grounds for offering this suggestion. Every farmer of experience

knows that the quality of the soil varies exceedingly, not only on the same farm, but in different parts of the same field. Experimental ground should, therefore, be treated with the greatest care. In most cases it will be necessary to prepare it in a variety of ways. The writer has a piece of ground under experiment which he manipulated with the utmost care. It was dug to a uniform depth, inequalities of surface and of soil removed by levelling and mixing, and repeated crops of grain raised without any manure before any experiment was made. No such care appears to have been considered necessary in undertaking the experiments on which Dr. Voelcker reports. The tables bear out our view fully, as we shall briefly show. In each place ten plots were laid out for experiment, and two of the ten (Nos. 5 and 10) were left unmanured. In page 431 we are favoured with the result of one set of these experiments, and we take from it the following figures:—

Plot.	Manure.	Yield of grass per acre.		
		Tons.	qrs.	lbs.
5	No manure ...	...	4	2 1
8	Crude potash salts ...	...	3	3 6
10	No manure ...	...	3	3 26

Dr. Voelcker concludes from these figures that crude potash salts diminished the produce. Now, in looking at the figures we find a greater difference between the two unmanured plots than between the one to which potash was applied and either of the others. Assuming that this difference arose from difference of soil, what guarantee have we that the crude potash salts were not applied to a soil inferior to either of the two unmanured plots?

We take another illustration of our argument from the table, page 432:—

Plot.	Manure.	Weight of grass per acre.		
		Tons.	cwt.	lbs.
3	Fine bone-dust ...	...	4	13 0
4	Mineral superphosphates and crude potash salts ...	...	3	19 4
5	No manure ...	...	2	17 2
6	Common salt ...	...	3	18 2
8	Crude potash salts ...	...	5	4 0
10	No manure ...	...	4	0 4

Here we have the difference between the two unmanured plots greater than the difference between one of them (No. 10) and any of the manures named.

The weight of grass from common salt was more than that from one of the unmanured plots, and less than that from the other. On which are we to rely in coming to a conclusion as to the action of common salt on the land of the experimenter? And, again, are we to conclude that while bone-dust increased the produce above either of the unmanured plots, and while crude potash salts increased it still higher, a mixture composed of superphosphate and crude potash salts produced less than an unmanured plot?

COOKE'S "FUNGI"

Fungi: their Nature, Influence, and Uses. By M. C. Cooke, M.A., LL.D. Edited by the Rev. M. J. Berkeley, M.A., F.L.S.—The International Scientific Series, vol. xiv. (London: Henry S. King and Co., 1875.)

THE names both of Dr. Cooke and Mr. Berkeley appear on the title-page of this work, but in the editor's preface it is stated that the whole of the manu-